

What is Claimed is:

1. A catalyst formulation which comprises a ceramic foam material interspersed between solid catalyst particles.
- 5        2. The catalyst composition of claim 1, wherein the ceramic foam material is comprised of a silicon carbide composition.
3. The catalyst composition of claim 1, wherein the ceramic foam material is in the shape of hollow  
10 cubes.
4. The catalyst composition of claim 1, wherein the porosity of the ceramic foam material is in the range of from 10 to 800 pores per linear inch.
5. The catalyst composition of claim 4, wherein  
15 the porosity is within the range of 10 to 80 pores per linear inch.
6. The catalyst composition of claim 4, wherein the porosity is in the range of 10 to 30 pores per linear inch.
- 20        7. The catalyst composition of claim 1, wherein the void space in the ceramic foam material ranges from about 80 to about 85 volume %.

8. The catalyst composition of claim 7, wherein the void space is about 85 volume %.

9. The catalyst composition of claim 1, wherein the crush strength of the ceramic foam material ranges  
5 from 100 to 600 lbs/sq. inch.

10. The catalyst composition of claim 9, wherein the crush strength of the ceramic foam material ranges from 400 to 500 lbs/sq. inch.

11. The catalyst composition of claim 1, wherein  
10 the percentage of ceramic foam material in the mixture, based on volume, ranges from 20 to 60%.

13. The catalyst composition of claim 1, wherein the solid catalyst particles comprise diatomaceous earth.

15 14. The catalyst composition of claim 1, wherein the solid catalyst particles comprise a solid phosphoric acid catalyst.

15. The catalyst composition of claim 14, wherein the solid catalyst particles comprise a diatomaceous  
20 earth impregnated with phosphoric acid.

16. A process of polymerizing hydrocarbons, which comprises passing a hydrocarbon feedstream through a

catalyst bed comprised of a mixture of ceramic foam material interspersed between solid catalyst particles.

17. The process of claim 16, wherein the composition of the ceramic material comprises silicon carbide.  
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18. The process of claim 16, wherein the ceramic material has a porosity in the range of from 10 to 800 pores per linear inch.

19. The process of claim 16, wherein the void space of the ceramic foam material ranges from about 80 to about 85 volume %.  
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20. The process of claim 16, wherein the crush strength of the ceramic foam material ranges from 100 to 600 lbs/sq. inch.

21. The process of claim 16, wherein the volume percent of ceramic material in the mixture ranges from 20 to 60%.  
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22. The process of claim 16, wherein the solid catalyst particles comprise a solid phosphoric acid catalyst.  
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23. The process of claim 16, wherein the hydrocarbon feedstream comprises light olefins.

24. The process of claim 16, wherein the hydrocarbon feedstream comprises aromatics and gaseous olefins.

25. The process of claim 23, wherein the process  
5 produces a liquid olefinic product.

26. The process of claim 25, wherein the liquid olefinic product is comprised of at least one selected from the group consisting of polygasoline, nonene and dodecene.

10 27. The process of claim 24, wherein the process produces a product comprising alkyl aromatics.

28. The process of claim 16, wherein the ceramic foam material was seeded with catalyst fines.

15 29. A polymerization reactor which contains a catalyst bed, wherein the catalyst bed contains a catalyst composition comprising a mixture of a ceramic foam material interspersed between solid catalyst particles.

20 30. The reactor of claim 29, wherein the composition of the ceramic material in the catalyst bed is comprised of silicon carbide.

31. The reactor of claim 29, wherein the ceramic material in the catalyst bed has a porosity in the range of from 10 to 800 pores per linear inch.

5 32. The reactor of claim 29, wherein the ceramic material in the catalyst bed has a void space in the range of from about 80 to about 85 volume %.

33. The reactor of claim 29, wherein the crush strength of the ceramic material is in the range of from 100 to 600 lbs/sq. inch.

10 34. The reactor of claim 29, wherein the volume percent of ceramic material in the mixture is in the range of from 20 to 60%.

35. The reactor of claim 29, wherein the solid catalyst particles comprise a phosphoric acid  
15 impregnated catalyst substrate.

36. A method of improving the life of a solid particulate catalyst, which comprises blending with the solid catalyst particles ceramic foam material so that the ceramic material is uniformly dispersed between the  
20 solid catalyst particles.

37. The method of claim 36, wherein the weight percent of ceramic material in the mixture is in the range of from 20 to 60 volume %.